

Notice of Allowability

Application No.

10/718,780

Examiner

Vincent P. Barth

Applicant(s)

NIKOONAHAD, MEHRDAD

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to Amendment dated 7 October 2004.
2. ☒ The allowed claim(s) is/are 26-107.
3. ☒ The drawings filed on 24 Feb. 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 1004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 1104, 1104
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Preliminary Comments

1. Applicant's Amendments dated 7 October, in conjunction with the *Examiner's Amendment* incorporated herein below, have placed the Application in a condition for allowance as written. Accordingly, the following represents a reasoned statement for allowability.

Allowable Subject Matter

2. Claims 26-107 are allowable, since the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations set forth therein.

3. Referring to Claim 26, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a rotation system for rotating a beam formation system and energy collection system successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally intersecting the preselected region, in combination with the remaining limitations in the claim.

Claims 27-37 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 38, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a rotation system for rotating a beam formation system and energy collection system successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally

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intersecting the preselected region, in combination with the remaining limitations in the claim.

Claims 39-46 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 47, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a means for rotating a directing means and receiving means successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally intersecting the preselected region, in combination with the remaining limitations in the claim. Claims 48-54 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 55, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a rotation system for rotating a beam formation system and first energy collection system successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally intersecting the preselected region, in combination with the remaining limitations in the claim. Claims 56-65 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 66, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a rotation system for rotating a beam formation system and energy collection system successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally intersecting the preselected region, in combination with the remaining limitations in the claim. Claims 67-82 are

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allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 83, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a method for measuring three-dimensional structures formed on a surface of a specimen comprises rotating a beam of incident e-m energy successively through a plurality of rotation angles about a rotation axis perpendicular to the surface of the specimen and centrally intersecting the preselected region, in combination with the remaining limitations in the claim. Claims 84-95 are allowable based on their dependency upon the claim from which each is dependent. Referring to Claim 96, the prior art references, either considered alone or in combination, do not disclose or render obvious the limitations whereby a device for measuring three-dimensional structures formed on a surface of a specimen comprises a plurality of beam formation systems disposed in a first plane parallel to the surface, each of said plurality of beam formation systems forming an incident beam of e-m energy and successively directing each of said beams of e-m energy at a predetermined illumination angle towards the preselected region of the surface, in combination with the remaining limitations in the claim. Claims 97-107 are allowable based on their dependency upon the claim from which each is dependent.

Comments

4. The ***Examiner's Amendment***, completed on 4 November 2004 and presented herein, renders the previously mailed Notice of Non-Compliant Amendment dated 28 October 2004 moot. Said Notice of Non-Compliant Amendment was mailed by PTO staff, rather than the Examiner, and was intended to notify Applicant's Counsel that the listing of Claims should have recited Claims 1-25 as cancelled. The Examiner's Amendment canceling Claims 1-25 has remedied any non-compliance, thus Applicant may ignore the Notice of Non-Compliant Amendment dated 28 October 2004.

EXAMINER'S AMENDMENT

5. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an Amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an Amendment, it MUST be submitted no later than the payment of the issue fee.

PLEASE NOTE THAT CLAIMS 26-107, AS SET FORTH IN "ATTACHMENT A" ATTACHED HERETO, SHALL BE ENTERED INTO THE RECORD, while incorporating the following amendments to said claims as discussed below. Authorization for this Examiner's Amendment was given in a Telephone Interview with Applicant Mehrdad Nikoonahad on 4 November 2004. The amendments to Claims 51 and 52 are intended merely to change the dependency, and wherein the claim shall now depend from Claim 50, rather than Claim 47. The amendment to Claim 96 is intended merely to change the phrase found in the first paragraph (excluding the preamble) from "successively directing said beam" to "successively directing each

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of said beams", with the remaining portions of the claim appearing *verbatim*. Accordingly, the claims shall be amended and appear as follows:

Claims 1-25: (cancelled)

Claim 51: (currently amended) The apparatus of claim 50, wherein said rotating means rotates said providing means with said forming means.

Claim 52: (currently amended) The apparatus of claim 50, wherein said providing means is stationary.

Claim 96: (currently amended) An apparatus for measuring three-dimensional structures formed on a surface of a specimen, comprising:

a plurality of beam-formation systems being disposed in a first plane parallel to the surface of the specimen and at a first plurality of preselected angles about a central preselected region of the surface, each of said plurality of beam formation systems forming a beam of incident electromagnetic energy and successively directing each of said beams of incident electromagnetic energy at a predetermined illumination angle toward said preselected region of the surface of the specimen;

a plurality of energy-collection systems for receiving at least a portion of said successive beams of incident electromagnetic energy scattered from a three-dimensional

structure formed on the surface within the preselected region and for converting said received portion of said successive beams of incident electromagnetic energy into data signals, said plurality of energy-collection systems being disposed in a second plane parallel to the surface and at a second plurality of preselected angles about the central preselected region; and

a processing system for processing said data signal at each of said second plurality of preselected angles to provide a measurement of a dimension of the three-dimensional structure.

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A red-lined version of Claims 51, 52 and 96 is set forth below to assist in the entry of said Amendment, wherein the underlined section marked in bold type indicates the language added:

Claims 1-25: (cancelled)

Claim 51: (currently amended) The apparatus of claim [47] 50, wherein said rotating means rotates said providing means with said forming means.

Claim 52: (currently amended) The apparatus of claim [47] 50, wherein said providing means is stationary.

Claim 96: (currently amended) The apparatus for measuring three-dimensional structures formed on a surface of a specimen, comprising:

a plurality of beam-formation systems being disposed in a first plane parallel to the surface of the specimen and at a first plurality of preselected angles about a central preselected region of the surface, each of said plurality of beam formation systems forming a beam of incident electromagnetic energy and successively directing each of said beams of incident electromagnetic energy at a predetermined illumination angle toward said preselected region of the surface of the specimen;

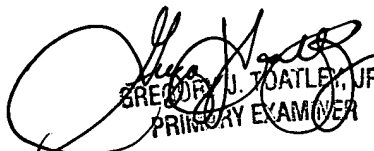
a plurality of energy-collection systems for receiving at least a portion of said successive beams of incident

electromagnetic energy scattered from a three-dimensional structure formed on the surface within the preselected region and for converting said received portion of said successive beams of incident electromagnetic energy into data signals, said plurality of energy-collection systems being disposed in a second plane parallel to the surface and at a second plurality of preselected angles about the central preselected region; and

a processing system for processing said data signal at each of said second plurality of preselected angles to provide a measurement of a dimension of the three-dimensional structure.

CONCLUSION

6. Applicants' Claims 26-107 are allowed based on the reasons set forth above.
7. Applicant has cancelled Claims 1-25.
8. Any inquiries concerning this communication from the Examiner should be directed to Vincent P. Barth, whose telephone number is 571-272-2410, and who may be ordinarily reached from 9:00 a.m. to 5:30 p.m., Monday through Friday. The official fax number for communications to the group is 703-872-9306.
9. If attempts to reach the Examiner prove unsuccessful, the Examiner's supervisor is Gregory J. Toatley, Jr., who may be reached at 571-272-2800, ext. 77.
10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


GREGORY J. TOATLEY, JR.
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